



Life on the Edge

New England Association of Environmental Biologists
2014 ~ Burlington, Vermont



38th Annual Conference

March 26-28

Hilton Hotel- Burlington, VT

Hosted by the

Vermont Department of Environmental Conservation

Final Conference Program



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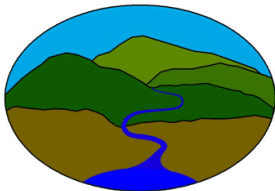
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Pre-conference Workshops, March 25 and 26th

Preparing for What's Next: Climate Change, Stormwater Management and Ecosystem Impacts

LCBP's Climate Change Adaptation in the Lake Champlain Basin: Stormwater and Aquatic Ecosystem Management Workshops (*Registration is required and limited to 50 participants.*

More information can be found here:

<http://www.epa.gov/region1/neaeb2014/pdfs/LCBPClimateChangeWorkshop.pdf>

Time	Tuesday 3/25: Stormwater Management	Wednesday 3/26: Aquatic Ecosystem/AIS Management
8:00-9:00	Registration	Registration/NEAEB Exhibits
9:00-10:00	<i>Plenary</i> - Lessons from Irene Mike Winslow, Staff Scientist LCC	<i>Plenary</i> - Climate Change Impacts on Lake Champlain Curt Stager, Paul Smiths College
10:00-10:30	Break (<i>Mezzanine</i>)	Break (<i>Mezzanine</i>)
10:30-12:00	Findings, Issues and Recommendations from Green Infrastructure GOAL: List of Green Infrastructure Recommendations for Climate Change	AIS Pathways and Potential New Threats GOAL: List of Potential AIS Threats
12:00-1:00	Lunch (<i>Lake Champlain Salon</i>)	Lunch (<i>Lake Champlain Salon</i>)
1:00-3:00	Boots on the Ground: Applying Low Impact Design Standards (LIDS) in the Champlain Basin GOAL: List of Management Strategies that Work in the Lake Champlain Basin	Predicted Impacts on Native Aquatic Species: How to Manage Climate Change in Lake Champlain GOAL: How to Apply Management Tools
3:00-3:30	Break (<i>Mezzanine</i>)	Break (<i>Mezzanine</i>)
3:30-5:00	<i>Roundtable</i> - Climate Adaptation and Stormwater Management in the Lake Champlain Basin Panel Discussion GOAL: Suite of Management Tools for Climate Adaptation	<i>Roundtable</i> - ANS Management Tools: What's Working, What's Not? Panel Discussion GOAL: Suite of ANS Management Tools
5:00-5:30	Meeting Adjourns	Walk to ECHO Lake Aquarium
5:30-7:30	--	NEAEB Poster Reception

Statistical Workshop for Water Resource Managers – hosted by NEIWPCC

This workshop is designed for water resource managers who are looking for an ecological statistics refresher course and want to gain basic to intermediate skills in using R (an open source statistical program) to explore and analyze ecological data sets. The goal of the workshop is to provide a general guide to data exploration and choosing appropriate analytical techniques for a specific dataset. The following items will be covered: Data import/export, basic handling of data, parametric techniques (e.g., ANOVA and Linear Regression), Testing parametric assumptions, Non-parametric Inference and Alternatives (e.g., LOESS, Quantile Regression), Overdispersion, Collinearity, and an Overview of common multivariate techniques (e.g., ANCOVA, NMDS). This is a two day instructor led workshop. Participants are encouraged to bring their own lab-top to follow along with the instructor, who will provide example datasets and worksheets. The workshop will be taught by Dr. Matthew Baker, an Associate Professor at the University of Maryland, Baltimore County.

Registration required. The workshop will be held in the ***Vermont Conference Room, Salon A.***

Time	Tuesday 3/25	Wednesday 3/26
8:00 am	<i>Breakfast (Lake Champlain Salon)</i>	<i>Breakfast (Lake Champlain Salon)</i>
8:30 am	Introduction	Introduction/Recap of Day 1
8:45 am	Data Import/Export, Basic handling	Collinearity
10:00 am	<i>Break (Mezzanine)</i>	<i>Break (Mezzanine)</i>
10:30 am	ANOVA and Linear Regression Testing Parametric Assumptions: Homogeneity	ANCOVA, Partial Correlation/Regression, Partial Mantel
12:00 pm	<i>Lunch (Lake Champlain Salon)</i>	<i>Lunch (Lake Champlain Salon)</i>
1:00 pm	Testing parametric assumptions: Normality	Overview of Multivariate Techniques
3:00 pm	<i>Break (Mezzanine)</i>	<i>Break (Mezzanine)</i>
3:30 pm	LOESS Quantile Regression	Overview of Multivariate Techniques
5:00 pm	End	End

Wednesday, March 26 - NEAEB Conference Begins!

10:30 am **Registration and Exhibits Open (*Mezzanine*)**

1:00-3:00 pm **Technical Sessions A1, B1, and C1**

Climate Change – A1 (<i>Green Mountain A</i>) Moderator: <i>Jen Stamp</i>	Lake Champlain I – B1 (<i>Green Mountain B</i>) Moderator: <i>Kari Dolan</i>	Flow-Runoff – C1 (<i>Green Mountain C</i>) Moderator: <i>Rich Langdon</i>
A Vulnerability Analysis and Adaptation Framework for Natural Resources in Vermont <i>Ben Jessup and Jen Stamp, Tetra Tech, Inc.</i>	Quantifying the effects of cyanobacterial buoyancy regulation on lake metabolism and benthic oxygen dynamics using high-frequency data <i>Peter Isles, UVM</i>	Using storm-watersheds to detect sources of pollution and prioritize land conservation areas at the local scale <i>Christina Chiapetta, Stormwater Coalition of Albany County</i>
Research on adaptation to climate change (RACC): A coupled human-natural systems approach <i>Christopher Koliba, Gund Institute</i>	Agricultural Practice Monitoring and Evaluation on Lake Champlain Basin Farms <i>Julie Moore and Dave Braun, Stone Environmental</i>	Development of a Flow Restoration Plan for Centennial Brook, Vermont <i>Nigel Pickering and Emily Shelley, Horsley Witten Group</i>
Quantifying Uncertainty in Modeling the Impacts of Climate Change on Water Quality in Freshwater Lakes: A Bayesian Network Model of Missisquoi Bay <i>Asim Zia, University of Vermont</i>	Measuring and Modeling the Effects of Lakeshore Development on Littoral Habitat and Biota in Malletts Bay, Vermont <i>Evan Fitzgerald and Joe Bartlett, Fitzgerald Environmental, Britt Hasleton, Vermont Land Trust</i>	Effect of Road Salt Load on Cation and Anion Export from Forested Watersheds in the Adirondack Park <i>Dan Kelting and Corey Laxson, Paul Smith's College</i>
The Northeast Regional Monitoring Network for freshwater Wadeable streams <i>Jen Stamp and Anna Hamilton, Tetra Tech, Margaret Passmore, Britta Bierwagen, and Jonathan Witt, USEPA</i>	Northeast U.S. Regional Lake Shoreland Assessment Project <i>Dan Homeier, Kellie Merrell, and Leslie Matthews, VTDEC</i>	Estimating the spatial extent of road runoff impacts on terrestrial and aquatic environments in the Adirondack Park <i>Sean Regalado and Dan Kelting, Paul Smith's College</i>

3:00-3:30 pm **Break (*Mezzanine*)**

Wednesday, March 26 (Continued)

3:30-5:00 pm Technical Sessions A2, B2, and C2

Stream Temperature – A2 (Green Mountain A) Moderator: Jen Stamp	Lake Champlain 2 – B2 (Green Mountain B) Moderator: Kari Dolan	Bioassessment – C2 (Green Mountain C) Moderator: Rich Langdon
NorEaST - A stream temperature inventory mapper and data portal for New England, Mid Atlantic and Great Lakes states streams <i>Dave Armstrong, USGS</i>	Where Rivers Meet Soil - Contribution of Riparian Soils to Phosphorus Loading in Northern Vermont <i>Caroline Alves, USDA, Kristen Underwood and Don S. Ross, UVM</i>	Comparison of assessment outcomes between the New England non-wadeable rivers fish assemblage assessment and the national rivers and streams assessment 2008-9 <i>Chris Yoder, Midwest Biodiversity Institute</i>
Summer Thermal Thresholds of Fish Community Transitions in Connecticut Streams <i>Chris Bellucci, Mike Beauchene, Mary Becker, Connecticut DEEP</i>	Mapping the Subaqueous Soils in Missisquoi Bay, Lake Champlain, Vermont-what we've learned <i>Thomas Villars, USDA/NRCS</i>	Using standardized effect size as a supplement to traditional null hypothesis rejection in biological monitoring <i>Declan McCabe, Anne L. Burnham, and Ismael Orengo, Saint Michael's College</i>
Incorporating retention time to refine models predicting thermal regimes of stream networks across New England <i>Naomi Detenbeck, USEPA Atlantic Ecology Division, Alisa Morrison, US EPA AED Student Services Contractor, Ralph Abele, US EPA Region 1</i>	A Conservation Partnership to Restore Ecosystem Services along the New Haven River <i>Kristen Underwood, South Mountain Research & Consulting and Steven Libby, Vermont River Conservancy</i>	Macroinvertebrate Bioassessment Through Next-Generation Sequencing Project <i>Toby Stover, Hilary Snook, and Katrina Kipp, USEPA</i>

5:00 – 5:30 Break with 5 minute walk to ECHO Aquarium

5:30-7:30 pm Poster Reception NEAEB & LCBP (ECHO Aquarium – Off site)

7:30 Dinner on your own

8:30 pm - Hospitality in the Presidential Suite

Thursday, March 27

6:30-8:00 am Breakfast Buffet (*Lake Champlain Salon*)

7:00 am- 4:00 pm Registration and Exhibits (*Mezzanine*)

**8:00-10:00 am Plenary: Implementing the Clean Water Act in the Modern Era
(*Green Mountain BC*) Moderator: Ethan Swift, VT DEC**

Pete LaFlamme, Director of Vermont Department of Environmental Conservation's Watershed Management Division, Jon Erickson, Professor and Interim Dean of the Rubenstein School of Environment and Natural Resources, Jim Murphy, Senior Counsel for the National Wildlife Federation, David Mears, Commissioner of Vermont's Department of Environmental Conservation and Diane Switzer, Regional Monitoring Coordinator, EPA New England Office of Environmental Measurement and Evaluation

10:00-10:30 am Break (*Mezzanine*)

**10:30-12:00 pm Technical Plenary: Biocriteria Development – Beyond Streams
(*Green Mountain BC*) Moderator: Kellie Merrell, VT DEC**

Biological Criteria Program - Current and Future Work
Hilary Snook, USEPA

Fast Tracking Lake Biocriteria in Minnesota
Jacquelyn Bacigalupi, Minnesota Department of Natural Resources

What do the plants say? Using aquatic macrophytes to assess ecological integrity
Alison Mikulyuk, Wisconsin Department of Natural Resources

12:00-1:00 pm Lunch Buffet (*Lake Champlain Salon*)

**1:00-3:00 pm SLAM Sessions! – 5 minute presentations (*Green Mountain BC*) followed
by breakout discussions with the speakers (*Adirondack Salon A*)
Moderator: Jeremy Deeds, FB Environmental**

**Believing that Science Still Has a Place at the Policy Making Table: The
Story of Vermont's Shoreland Protection Bill**
Kellie Merrell, Vermont Department of Environmental Conservation

Examining effects of winter water level drawdowns on fish populations in New England lakes

Jason Carmignani, UMass Amherst and Allison H. Roy, USGS

How zooplankton (or at least, how a certain zooplankton key) may be able to show us the way to increasing appreciation of biodiversity in freshwater systems

Shane Bradt, James Haney, and Amanda Murby, UNH Cooperative Extension

Making sense of bioassessments of multiple taxonomic groups

Tom Danielson, Maine Department of Environmental Protection

Identification of current/potential invasive freshwater mollusks, fish and crustaceans in the Northeast

Mark Malchoff, Lake Champlain Sea Grant

Recommendations on the Utility of Boat Inspection and Decontamination as Components of an Integrated Aquatic Invasive Species Prevention Strategy in the Adirondack Region

Eric Holmlund, Paul Smith's College, Meg Modley, Lake Champlain Basin Program, Meghan Johnstone, Adirondack Park Invasive Plant Program

Characteristics of Cyanobacteria that Make Monitoring Their Populations and Toxicity Challenging

Joan Beskenis, MA Division of Watershed Management

Volunteer monitoring of cyanobacteria on Lake Champlain

Mike Winslow, Lake Champlain Committee

The NRCS Initiative to Improve Water Quality by Promoting Soil Health

Fletcher Potter, USDA/NRCS

Minimizing Flood Risks and Habitat Impacts Due to Post-Flood Recovery Efforts

Roy Schiff, VHB

Threading the Needle: Vermont's Stormwater Management Manual

Amy Macrellis, Stone Environmental, Inc.

Turning water monitoring data into improvement - Vermont's Tactical Basin Planning Process

Neil Kamman, Vermont Department of Environmental Conservation

Thursday, March 27 (Continued)

3:00-3:30 pm **Break (*Mezzanine*)**

3:30-5:00 pm **Technical Sessions D1, E1 and F1**

Developing Biocriteria 1 – D1 (<i>Green Mountain A</i>) Moderator: Kellie Merrell	Land Cover – E1 (<i>Green Mountain B</i>) Moderator: Neil Kamman	Flow-Hydrology – F1 (<i>Green Mountain C</i>) Moderator: Blaine Hastings
Biological Criteria Development for Maine Wetlands <i>Jeanne DiFranco, Maine DEP</i>	The ability of streams to withstand the effects of urbanization <i>Tom Danielson, Leon Tsomides, and Doug Suitor, Maine DEP</i>	Understanding CWA Section 316(b) and Positive Impacts to Fish Populations <i>Nathan Henderson, Stantec</i>
Lake Assessment and Macroinvertebrate IBI Development in Illinois <i>Ben Jessup and Jen Stamp, Tetra Tech Inc.</i>	The Conundrum: Aquatic Life Use Support and the Urban Watershed <i>Rosemary Gatter-Evarts, CTDEEP</i>	Power Plant, Lower Charles River, MA: Impacts, Litigation, Resolution <i>Gerald Szal, MassDEP</i>
Development of a Fish-Based Index of Biotic Integrity for Minnesota's Lakes <i>Jacquelyn Bacigalupi, MN DNR</i>	Landscape and watershed predictors of insect and fish assemblage in Massachusetts streams <i>Robert Smith, UMass Amherst and Allison Roy, USGS</i>	Hydrological impacts of water supply reservoirs in Massachusetts streams <i>Todd Richards, Mass F&W, Christopher R. Smith, UMass Amherst, Allison H. Roy, USGS</i>

4:30-10:00 pm **Silent Auction (*Mezzanine*)**

5:00-7:00 pm **Business Meeting (*Vermont Conference Room A*)**

7:00-10:00 pm **Dinner Banquet with Rehab Roadhouse Band (*Lake Champlain Salon & Seasons*)**

10:00 pm **Hospitality in the Presidential Suite**

Friday, March 28

6:30-8:00 am **Breakfast Buffet (*Lake Champlain Salon*)**

“Bugathon” Macroinvertebrate Taxonomy Workshop: (*Green Mountain A*)

8:00 - 9:00 am **Taxonomic Updates**

Steven Burian, Southern Connecticut State University, Chris Fishel, Watershed Assessment Associates, and Michael Cole Ecological Inc.

9:00 – 10:00 am **Unknown Specimens Verification & Mock SFS tests Chironomidae & EPT**
10:00 am **Break (*Mezzanine*)**

10:30 – 12:00 pm **Unknown Specimens Verification and Mock SFS tests Chironomidae and EPT *continued***

8:00-10:00 am **Technical Sessions G1 and H1**

Monitoring 1 – G1 (<i>Green Mountain B</i>) <i>Moderator: Neil Kamman</i>	Emerging Science – H1 (<i>Green Mountain C</i>) <i>Moderator: Angela Shambaugh</i>
Ten Years of Data Collection at Candlewood Lake, CT by Students from 5 Secondary Schools <i>Alberto Mimo, Education Connection, and Larry Marcican, Candlewood Lake Authority</i>	The inherent optical properties of lake water in relation to limnological features in the pelagic zone <i>David Kalenak, SYR</i>
Pre- and post-TMDL Monitoring on the Assabet River: Water Quality and Aquatic Plant Biomass Trends 1993 - 2013 (or The Value of Long-Term Fixed-Station Monitoring) <i>Suzanne Flint, OARS</i>	Microbial source tracking of E. coli employing ribotyping in the Lamoille River basin, VT. <i>Bob Genter, D. Minkoff, A. Murphy, J. Hokenberg, M. Luther, and E. Harris, Johnson State College</i>
Restoring Water Quality in the Lake Memphremagog Basin, Quebec/Vermont <i>Fritz Gerhardt, Beck Pond LLC</i>	One algorithm to rule them all? Recent advancements in the use of remote sensing to estimate chlorophyll in New England lakes <i>Shane Bradt and James Haney, UNH Cooperative Extension</i>
Merging water quality standards and monitoring and assessment produces better management outcomes <i>Chris Yoder, Midwest Biodiversity Institute</i>	A modified framework for trophic status assessment of large lake ecosystems using existing water quality datasets: Application to Lake Champlain <i>yaoyang xu, Andrew W. Schroth, and Donna M. Rizzo, EPSCoR, University of Vermont</i>

10:00-10:30 am **Break (*Mezzanine*)**

10:30-12:00 pm **Technical Sessions G2 and H2**

Monitoring 2 – G2 (<i>Green Mountain B</i>) Moderator: Neil Kamman	Developing Biocriteria 2 – H2 (<i>Green Mountain C</i>) Moderator: Angela Shambaugh
Watershed Based Water Quality Monitoring Experimental Design and Implementation for Large Scale Wind Projects <i>Josh Sky, VHB</i>	The development and application of a New York State specific fish based index of biotic integrity (IBI) <i>Anne Burnham and Zachary Smith, SUNY</i>
High Frequency Turbidity Monitoring to Quantify Sediment Loading in the Mad River <i>Scott Hamshaw, Kristen Underwood, and Donna Rizzo, UVM</i>	Recognizing the need for and development of biocriteria for small headwater streams in Ohio <i>Chris Yoder, Midwest Biodiversity Institute</i>
Continuous, real-time streamflow and water- quality monitoring in the Blackstone River at the Massachusetts-Rhode Island state line <i>Jason Sorenson and Kirk Smith, USGS, and Elaine Hartman, MassDEP</i>	Using the composition of aquatic macrophyte communities to assess ecological integrity <i>Alison Mikulyuk, Wisconsin Department of Natural Resources</i>

12:00 pm **Conference Ends**